



RED HORIZON
THE FPT INDUSTRIAL'S
MARINE INTEGRATED
ELECTRONIC CONTROL
AND MONITORING
SYSTEM

**Our efficiency.
Your edge.**



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RED HORIZON

FPT INDUSTRIAL

ELECTRONIC CONTROL

SYSTEMS

FPT INDUSTRIAL ELECTRONIC CONTROLS

FPT INDUSTRIAL PREMIUM CONTROL Key Features

- FPT Industrial adopts ZF electronic propulsion control systems (SmartCommand) specifically matched for FPT Industrial engines. The FPT Industrial Premium Control integrates the latest **CAN bus technology** into a user friendly control head: 5200.
- **Visual indicators** on the control head help to locate the neutral detent position and 2-color LED's indicate which control head is in command and whether the corresponding transmission is engaged.
- The FPT Industrial Premium Control offers the freedom to customize special features for docking or trolling. Advanced control modes include:
 - ✓ CRUISE
 - ✓ EASIDOCK
 - ✓ AUTOTROLL
 - ✓ WARM UP
 - ✓ ONE LEVER



FPT INDUSTRIAL PREMIUM CONTROL - MODES

- **CRUISE** mode is the normal operating condition. In this mode the operator has single lever control of clutch and throttle with one control head lever for each engine.
- **EASIDOCK** mode offers the operator a positive clutch response while insuring easy and precise manoeuvrability in tight docking situations. This enhanced feature provides the ability to modulate the clutches and to control the engine speed to obtain the shaft RPMs required to safely dock the vessel.
- **AUTOTROLL** mode allows a full range of shaft speed control using a closed loop feedback sensor to maintain a constant propeller RPM. This feature controls clutch slippage while maintaining slow engine speed.
- **WARM UP** mode is useful to increase engine RPM while locking the transmission in neutral.
- **ONE LEVER** mode allows you to enjoy the benefit of multi-engine operation with full shift and throttle control by operating a single lever.



Main Features

- CAN or PWM communication
- High/low idle setting
- Engines synchronization
- *All connection cables are included within the FPT Industrial option kits.*

Optional

- Clutch oil pressure interlock
- Failure alarm contact
- Closed loop trolling valve control
- Up to 6 control stations
- Additional JMS Joystick station (up to 6)

Requirements

- Single or twin screw vessels
- Electronic engines
- Gears with solenoids (Electronic)
- Shaft line, PODs and sterndrive applications
- Trolling valves (optional on gearbox) to reach full levers functionality
- SmartCommand sensor kit (optional on gearbox) to reach full levers functionality

FPT INDUSTRIAL MANOEUVERING SYSTEMS

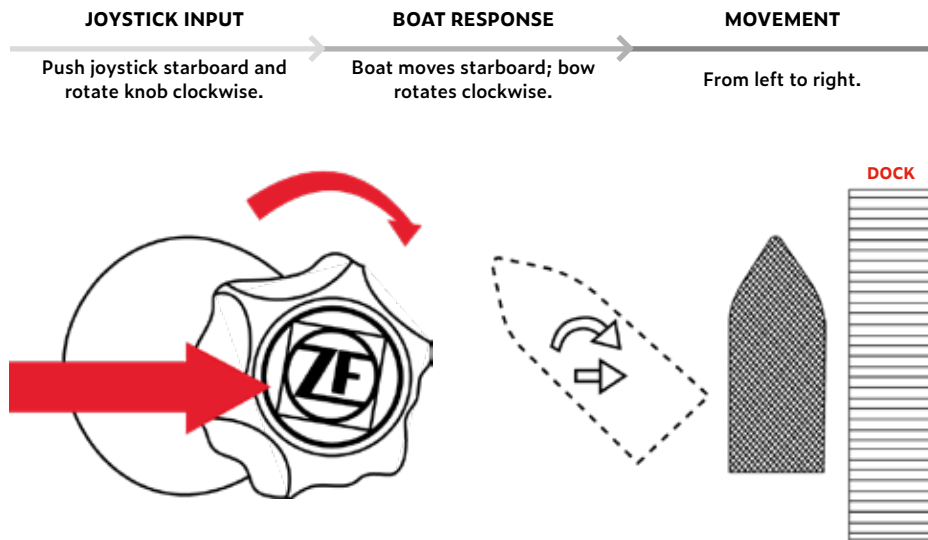
FPT INDUSTRIAL PREMIUM JOYSTICK

Key Features

- FPT Industrial adopts ZF manoeuvring systems (JMS) specifically matched for FPT Industrial engines. The FPT Industrial Premium Joystick provides **simple and intuitive boat control** during manoeuvres and allows the captains to easily manoeuvre the vessel in complex docking situations.
- Manoeuvres such as moving sideways to the dock, 360° rotation on the spot and vessel control at low speed, difficult with standard control heads, become easy operations.
- The system also controls the throttle of the engines and shifts the transmissions with automatically controlled trolling valves to provide the precise speed needed **for smooth manoeuvring and easy docking even in tight spaces.**
- Thanks to an integrated electronic compass, the FPT Industrial Premium Joystick, **keeps the vessel going in the selected direction.**
- Ready to work with an additional **iAnchor kit, to keep vessel automatically in position** against wind and current.

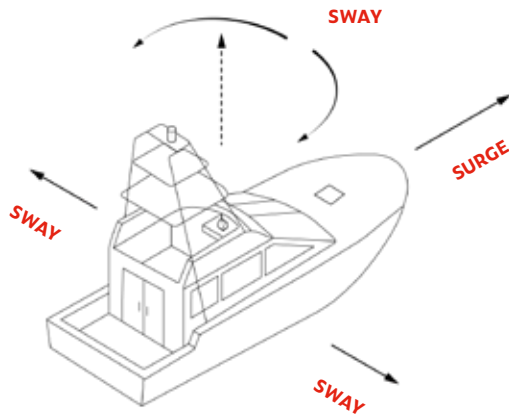


SIMULTANEOUS MOVEMENT AND ROTATING KNOB



JOYSTICK MODES OF OPERATION

Vessel Surge/Sway Plane.



Technical details

- 12/24 V DC system
- CAN or PWM based joystick station, with one push button to take control and select functions
- CE certified Manoeuvring Control Unit
- Up to six control stations
- Waterproof (IP67) joystick
- Options (not supplied by FPT Industrial):
 - iAnchor,
 - iDrift
 - Interface with ZF steering

Main Features

- **Smooth engagement** due to an optimized trolling valves control
- **Reduced transition time** between trolling and lock-up conditions
- Complete joystick system **setup** and commissioning in **less than 4 hours**

All connection cables are included within the FPT Industrial option kits.

Requirements

- Twin screw vessel (PODs and sterndrive applications included)
- ZF gearboxes installed and equipped with electronic trolling valves and SmartCommand sensors kit
- Bow thruster (hydraulic preferred) interfaces:
 - Vetus
 - Key Power
 - Side Power/Sleipner
 - ABT
 - Max Power
 - Naiad
 - Lewmar



RED HORIZON

FPT INDUSTRIAL

MONITORING

SYSTEMS

Simrad Navigation Display line-up

	GO XSE/XSR 7/9/12"	NSS Evo3S 9/12"	NSO Evo3S 16"
CRUISING AND FISHING			
QUALITY / PERFORMANCE	<ul style="list-style-type: none"> • VALUE • Traditional + Basic Imaging Sonar • Radar networking • Engine networking • Basic Ethernet 	<ul style="list-style-type: none"> • MID-RANGE • Dual CHIRP Sonar Capability Built in • Advanced Networking to include 3D • Chart Sharing • SolarMax HD screens 	<ul style="list-style-type: none"> • PREMIUM • Responsiveness and Dependability CRITICAL • Customized System Install for Cruising or Sportfish with premium performance standard (S5100 & Halo)
EASE-OF-USE (EOU)	<ul style="list-style-type: none"> • Touchscreen • Tablet-like • Intuitive 	<ul style="list-style-type: none"> • Buttons and keypad for ease-of-use under any conditions 	<ul style="list-style-type: none"> • Primary Touch interface with Ruggedized Controllers that are designed for functionality (Large Buttons and knobs) and aesthetics in mind
VALUE	<ul style="list-style-type: none"> • Charts included (US) • Chart options (ROW) 	<ul style="list-style-type: none"> • Better Embedded Charts • Chart Options 	<ul style="list-style-type: none"> • Premium Design and Advanced Functionality

Mounting Options

Dash Mount



- Dash mount directly onto a console or dash
- 8mm profile
- Screws install from the front with removable surround bezel

Bracket mount installation



- Easily mount onto a flat surface
- Tilt for best viewing angles
- Can be hung overhead

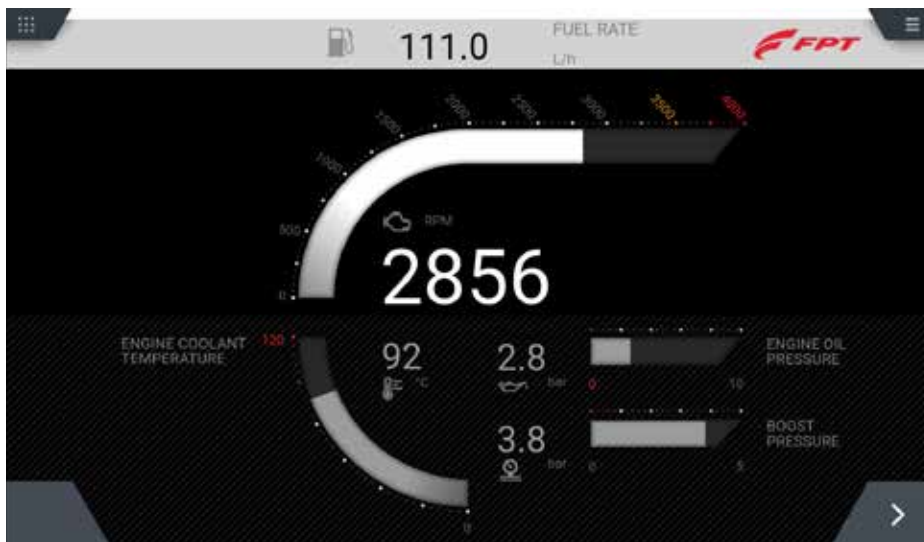
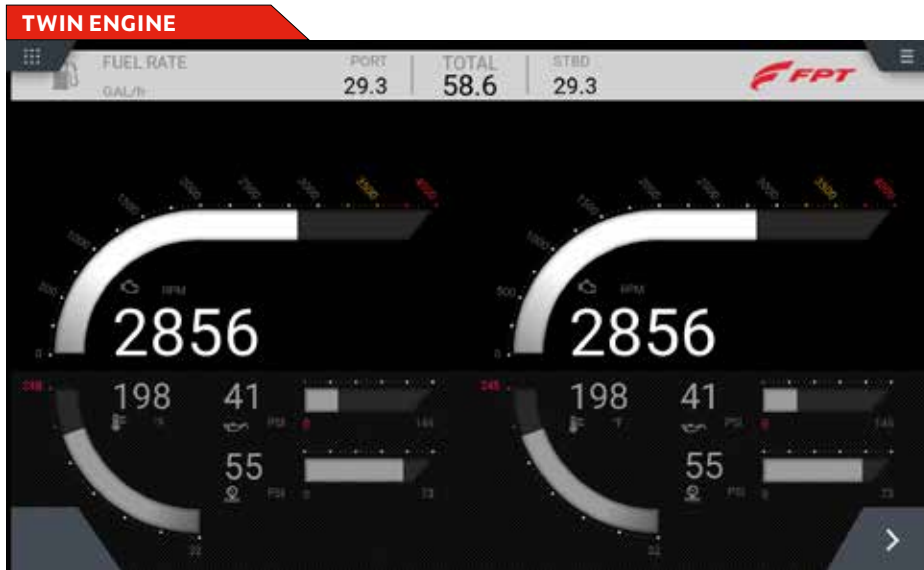
Simrad Navigation Display line-up

	GO XSE/XSR 7/9/12"	NSS Evo3S 9/12"	NSO Evo3S 16"
Weight	1,32 kg (2.91 lb)	1,41 kg (3.11 lb)	3,9 kg (8.6 lbs)
Power Consumption max	20 W	21 W	44 W
Operating Voltage	10-17 V DC	10-31,2 V DC	10-32 V DC
NMEA 2000 Connectivity	1 x NMEA 2000 Micro-C port		
Colour	Black		
Display: Size	7" / 9" / 12" Diagonal	9" / 12" Diagonal	16" Diagonal
Type	TFT Widescreen	SolarMAX™IPS touchscreen	
Resolution	800x480	1280x720	1980x1080
Screen Brightness	1200 nits		
Viewing Angle	80° top/bottom, 80° left/right		
Waterproof rating	IPX6 and IPX7		IPX6 on the front
Operating Temperature range	-15°C to +55°C (+5°F to +131°F)		

High Brightness Display	✓	✓	✓
IPS Screen Technology (including "IPS-Like")		✓	✓
Multi-touch screen	✓	✓	✓
Built-in WiFi	✓	✓	✓
Built-in CHIRP echosounder	✓	✓	External module required (S5100)
Built-in Structurescan	✓	✓	External module required (SonarHub)
Built-in Forwardscan	✓	✓	External module required (SonarHub)
Dualechosounder ports		✓	External module required (SonarHub)
Radar capable	✓	✓	✓
Network sounder capable		✓	✓
Keypad control	Optional	✓	Optional
Engine integration	✓	✓	✓
Entertainment integration	✓	✓	✓
3D sonar capable		✓	✓
Dual chirp transducer capable		✓	External module required (S5100)
Network chart sharing			✓
Quad Core processing power			✓

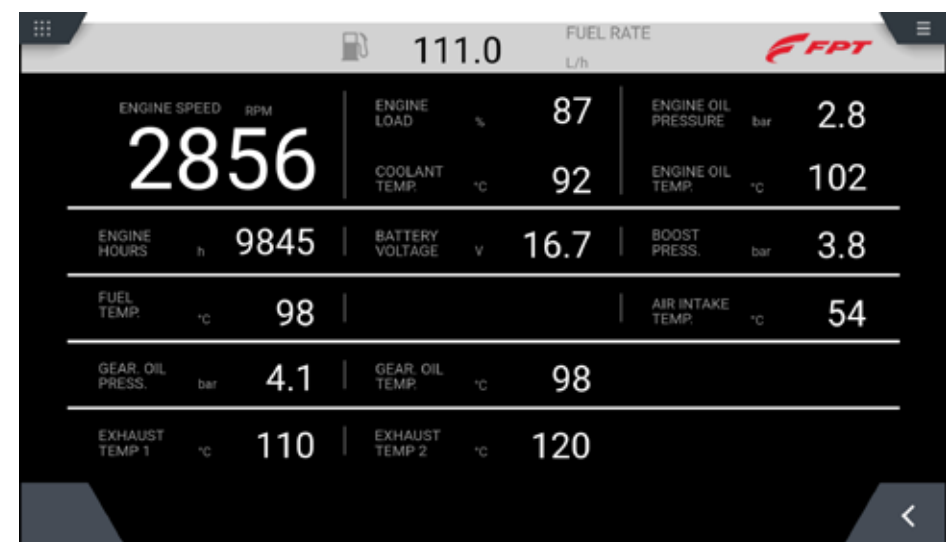
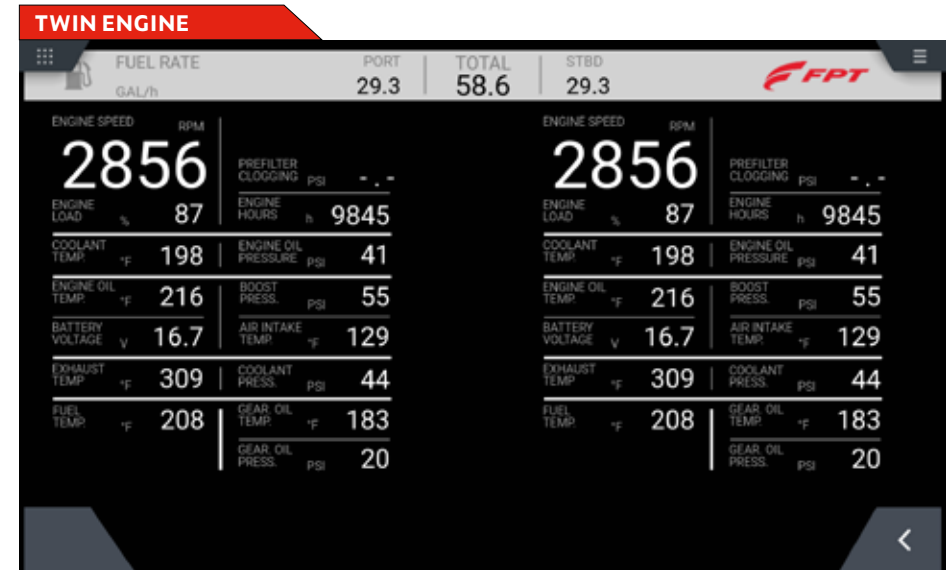
SIMRAD NAVIGATION DISPLAY: Engine Monitoring

Main Dashboard



SIMRAD NAVIGATION DISPLAY: Engine Monitoring

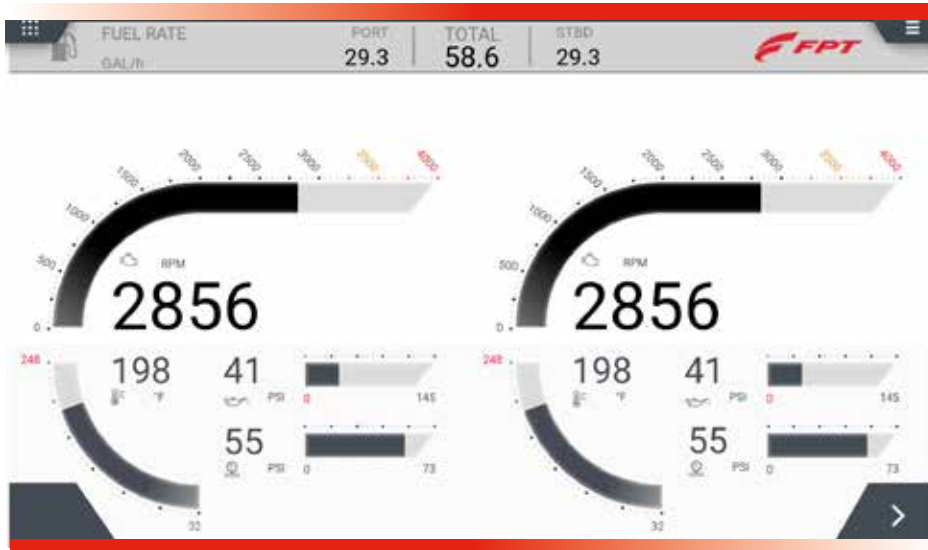
Detailed Values



SIMRAD NAVIGATION DISPLAY: Engine Monitoring

High Contrast Mode

to improve day view the high contrast mode is available for all simrad navigation display line-up go xse/xsr, nss evo 3s and nso evo3s



SIMRAD NAVIGATION DISPLAY LINE-UP: Preloaded Maps and Customized Visualization

- Preloaded maps



- Customize your desktop visualization
- Create your own favourite screen and apps combinations



SIMRAD NAVIGATION DISPLAY LINE-UP: App for Screen Mirroring

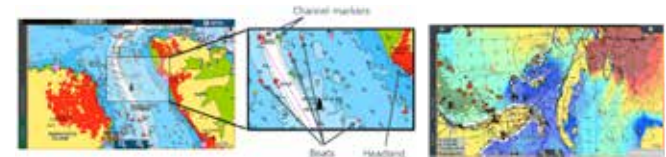
Built in Wi-Fi connectivity means no extra hardware is required:

- Mirror your GO, NSS and NSO Series screen on compatible smartphones by downloading the Link app (by Navico GoFree), available for Android and iOS.
- Take control of your GO, NSS and NSO Series using a compatible tablet.
Note, Auto pilot can't be controlled from a tablet.



SIMRAD NAVIGATION DISPLAY LINE-UP: Additional Functions

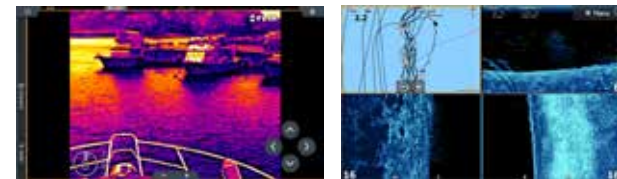
RADAR and WEATHER



AUTOPILOT

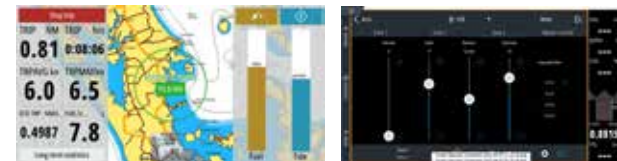


CAMERA/
THERMAL
CAMERA



ECHOSOUNDER

TRIP DATA
STATISTICS



AUDIO
CONTROL

GO SERIES

XSE/XSR

7", 9" AND 12"

SIMRAD Go-SERIES: Key Features

- Wide variety of Screen sizes – 7", 9", 12"
- Easy to use multi touch software
 - Safely and easily navigate using your favourite cartography (Insight, Navionics, CMAP, NV Digital)
 - Determine depth, bottom type and find fish using one of the many echosounder technology options
 - Quick and simple control of entertainment systems connected on NMEA2000
 - Vessel circuit control when connected to a C-zone digital switching system
 - View and monitor engine data while underway
- Low Profile Glass dash styling on all models
- Super bright widescreen display
- Built in Wi-Fi connectivity
 - Software update notifications and downloads when connected to the internet
 - Screen mirroring when connected to a mobile device with Link app
 - Rapid vessel certification with LinkPro app
- Built in 10 Hz GPS antenna
- Built in echosounder (Broadband & Chirp)
- Built in DownScan and Sidescan Imaging (transducer required)
- Built in Forwardscan Imaging (transducer required)
- Radar port for direct connection to Simrad 3G/4G or Halo Radar scanners and Future Enhancements
- Sirius Weather display when connected to a WM-3 module (USA only)
- Operable with Remote Controller (optional)
- Dual Micro SD card slots (only for GO9 XSE & GO12 XSE)

SIMRAD Go-SERIES: Technical Features

	GO7 XSR	GO9 XSE	GO12 XSE
High Brightness Display	✓	✓	✓
Multi-touch screen	✓	✓	✓
Built-in WiFi	✓	✓	✓
Built-in CHIRP echosounder	✓	✓	✓
Structurescancapable	✓	✓	✓
TotalScancapable	✓	✓	✓
Forwardscancapable	✓	✓	✓
NMEA2000 networking	✓	✓	✓
Engine integration	✓	✓	✓
Autopilot integration	✓	✓	✓
Entertainment integration	✓	✓	✓
10Hz Built-in GPS	✓	✓ (high sensitivity)	✓ (high sensitivity)
4-way screen split	✓	✓	✓
Waypoints/Routes/Tracks sharing	✓	✓	✓
Radar capable	✓	✓	✓
Dual chart card slots		✓	✓

NSS EVO3S 9" AND 12"

SIMRAD NSS-SERIES: Key Features

- High Resolution, High Bright, SolarMax IPS Displays
- Screen sizes available – 9" and 12"
- Easy-to-use touchscreen user interface as well as full keypad for simple and precise control in any sea conditions
- Fast iMX8 processor
 - Fast page changes
 - Smooth transitions (like chart rotation and panning)
 - Multi-tasking
- Built-in advanced echosounder capable of 1kW Dual channel CHIRP, Forwardscan, Sidescan, Downscan and StructureScan 3D images
- Take another step forward with Simrad's premium network modules for the ultimate offshore performance
 - Halo Dome and Open Array Radars
 - S5100 Sportfishing Echosounder
- Direct audio, autopilot and engine connection and control
- Low profile glass dash styling
- Built in Wi-Fi connectivity
 - Software update notifications and downloads when connected to the internet
 - Screen mirroring when connected to a mobile device
- Built in high sensitivity 10 Hz GPS antenna
- Dual Micro SD card slots

SIMRAD NSS-SERIES: User Interface Customization

Look and Feel

Dark themed wallpaper means less light pollution when you have a dash full of MFDs.
Split the screen up to 6 ways to make sure you keep everything in view at all times.



Full Page Audio

Along with the Audio side bar you can now expand that into a full page view for greater control of your sound system.



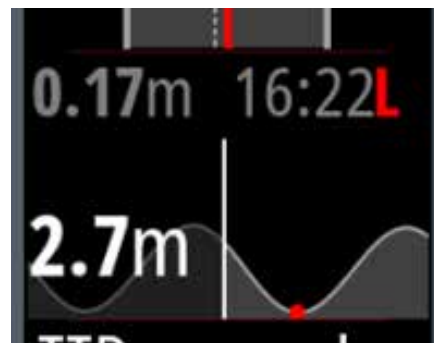
Chart Orientation Control

A simple addition to the chart panel is a chart orientation button. Change between North up, Heading up and Course up quickly and easily on the chart screen without having to open the menu. Great for if you like to have it in heading up while moving and North up while drifting.



Tide Graph In Instrument Bar

You can now have a quick reference to your local Tide Graph in the instrument bar on the right hand side of your screen. Always know when the tide changes without having to leave the page you're on.
Tapping on this Tide Graph opens the full tides page if you want to see more information.



SIMRAD NSS-SERIES: SolarMAX IPS Display Technology

With NSS evo3S you have full control of your vessel at your fingertips.

- The super responsive touchscreen makes route planning and adjusting settings a breeze.
- Full keypad control with both rotary dial and arrow keys means that when conditions get rough you have something physical to hold on to and have no doubt about who's in control.
- Ultra-wide viewing angles for excellent viewability from any angle on the boat (>80 degrees up/down/left/right)
- High resolutions for best on-screen detail
- High brightness LED backlight and antireflective coating for ultimate bright sunlight viewing
- Very high maximum display operating temperatures for reliable operation in the harshest boating locations
- Multi-touch screen for simple, intuitive software control
- Optical bonding for zero chance of display fogging
- Oleophobic coating for easy removal of fingerprints
- User configurable wheelkey



SIMRAD NSS-SERIES: Specifications

	NSS 9 evo3S	NSS 12 evo3S
Dimensions	287 x 166 x 90 mm (11.30 x 6.55 x 3.50") with bracket 311 x 180 x 95 (11.30 x 7.07 x 3.72)	352 x 225 x 98 mm (13.84 x 8.87 x 3.82") with bracket: 377 x 241 x 120 (14.85 x 9.47 x 4.71)
Weight	1.41kg/3.11lb	3.10kg/6.83lb
Display size and type	High Visibility SolarMaxHD® IPS 9" optically bonded TFT	High Visibility SolarMaxHD® IPS 12.1" optically bonded TFT
Display screen brightness	1200 nits	1200 nits
Display resolution	720 x 1280	800 x 1280
Fuse rating	5 A	5 A
Power consumption (Max)	21 W	28 W
Ethernet connectivity	1 x 5 pin yellow connector x 100 Mbit	2 x 5 pin yellow connector x 100 Mbit
HDMI Output	No	Yes

All NSS 12 evo3S

Mounting options	Bracket (Supplied) or panel mount
Operating temperature range	-15°C to +55°C (5°F to 131°F)
Storage temperature range	-20°C to +60°C (4°F to 140°F)
Water resistance	IPX6 and 7
Supply voltage	10 -31.2 V DC
Display backlight color	White sRGB
Display viewing angles	80°top/bottom, 80°left/right
Bluetooth connectivity	Internal
NMEA2000 connectivity	1 x NMEA 2000 Micro-C port, 1 LEN
NMEA 0183 connectivity	1 x Transmit, 1 x Receive NMEA 0183, Baud Rates 4800, 9600, 19200, 38400. TX and RX use same baud rate. Optional data cable required (P/N 000-00129-001)
NMEA 0183 sentences	Input: GGA, GLL, GSA, GSV, VTG, ZDA, RMC, DBT, DPT, MTW, VLW, VHW, HDG, HDT, HDM, MWV, MWD, DSC, DSE, VDM. (Note AIS sentences are not bridged to or from NMEA 2000) Output: GGA, GLL, GSA, GSV, VTG, ZDA, RMC, DBT, DPT, MTW, VLW, VHW, HDG, MWV, MWD, TLL, TTM
Video connectivity	2 x composite (RCA connectors) video inputs. Optional video/ data cable required (P/N 000-00129-001).
WiFi connectivity	Internal WiFi802.11
Sonar frequencies	40-250kHz 455-800kHz
Sonar max depth	3000'+ (tested with B175L)
Sonar output power	1kW RMS



SIMRAD NSS-SERIES: Specifications

	All NSS 12 evo3S
Compliance	CE, C-Tick, HDMI, EN 60950-1:2006, EN 60945:2002, EN 300 440-2, V1.4.2
GPS	Internal, 10Hz, WASS, MSAS, EGNOS, GLONASS
GPS update rate	10 Hz
GPS channels	34 Channels
GPS correction	WASS, EGNOS, MSAS, GLONASS
GPS position accuracy	Horizontal Accuracy 3 m (9.8 ft)
GPS time to first fix	Cold start 50 sec, Satellite Reacquisition 5 sec
Interface	Full touch screen (multi-touch) and full keypad control, OP50 remote controllers
Charts Included	Insight for USA models: Base map for rest of world models
Radar	Broadband Radar, Halo Pulse Compression Radar, HD Pulse Radar
Sonar	Two 9 pin Xsonic Sonar ports. Sonar port 1: Single channel CHIRP, 50/200 khz, HDI. Sonar port 2: Single channel CHIRP, 50/200 khz, TotalScan, LSS HD, ForwardScan. Compatible with: SonarHub, BSM-3, BSM-2, network echo sounders
Weather	SiriusXM via WM-3 (USA only), GRIB
AIS	Receive AIS data over NMEA 2000 or *NMEA 0183 (has to be wired to all NSS processors)
Auto pilot integration	Full auto pilot control and commissioning
Autopilot steering modes	Auto, Nav., No Drift, Follow up, Non-follow up, Turn patterns, Standby, *Wind, *Wind NAV. (*Boat type set to Sail)
Autopilot manoeuvre return patterns	U-turn, Spiral-turn, C-turn, Zig-zag, Square-turn, Lazy S-turn, Depth contour tracking
Supported Charts	Insight, Navionics (Gold, NAV+ Platinum+), C-MAP (MAX N, MAX N+, Reveal) NV Digital (Raster US Charts)
Digital switching	BEP C-Zone, Naviop
External storage	2 MicroSD slots, max. 32GB each. Larger if formatted to NTFS
Internal storage	32 GB
Multi-media	via SonicHub2, FusionLink, *Sirius, **JL Audio. (*USA only, **AUST. & NZ only)
Waypoints, routes & tracks	6000 waypoints, 500 Routes with 100 max route points, 50 tracks with up to 12,000 track points.
Language Support	Standard Language Pack: English(US), English(UK), Danish, German, Spanish, Finnish, French, Greek, Icelandic, Italian, Dutch, Norwegian, Portuguese, Swedish. Other languages supported by Unlock: Japanese, Korean, Thai, Chinese, Bulgarian, Hebrew, Croatian, Hungarian, Lithuanian, Latvian, Polish, Slovak, Turkish, Russian, Ukrainian, Arabic, Farsi

NSO EVO3S 16"

SIMRAD NSO16: Product Description

- NSO Evo3S is Simrad's premier larger boat MFD solution
- NSO Evo3S offers:
 - Large Wide Format Displays designed for premium boats –all in Full HD 1920x1080
 - Best in Class Viewability from all angles with and without polarized glasses
 - Customize your solution with High Performance Network Modules including:
 - Halo Radar
 - S5100 Sportfishing Echosounder
 - StructureScan3D Echosounder
 - ForwardScan
 - Autopilot
 - The Fastest / Most Responsive Simrad System yet
 - Fast page changes
 - Smooth transitions (like chart rotation and panning)
 - Multi-tasking



SIMRAD NSO-SERIES: Key Features

- High bright, wide viewing angle displays
 - Full HD (1920x1080) on all sizes
 - Easy to use multi touch software
 - Safely and easily navigate using your favourite cartography (Insight, CMAP, Navionics)
 - Determine depth, bottom type and find fish using one of the many echosounder technology options
 - Quick and simple control of entertainment systems connected on NMEA2000
 - Vessel circuit control when connected to a NaviOP or C-zone digital switching system
 - View and monitor engine data while underway
- Low Profile Glass dash styling
- Built in Wi-Fi connectivity
 - Software update notifications and downloads when connected to the internet
 - Screen mirroring when connected to a mobile device
- Micro SD card slot
- Operable with OP50 Remote
 - Advanced networking and I/O options
 - CAN ports (NMEA 2000 and J1939)
 - NMEA 0183 serial port
 - Ethernet (3 RJ45 ports)
 - Analogue video (2 input ports)
 - HDMI video (1 Input, 1 Output)
- Direct Audio, Autopilot and engine connection and control
- Magnetic sun covers for all sizes

SIMRAD NSO-SERIES: Key Features

Ultimate Clarity

NSO evo3S delivers the ultimate view with an ultra-bright display, available in 16, 19, or 24-inch widescreen sizes. Wide viewing angles keep the screen in view from anywhere in sight, even if you're wearing polarised sunglasses. See more than ever with Full HD resolution, and the option to combine up to six panels in a split-screen layout.



Swift Response

Every NSO evo3S display features an integrated six-core processor for ultimately smooth response, from charting to StructureScan® 3D imaging. Enjoy swift access to the information you need, as you need it, whether you're cruising the open ocean or carefully navigating a crowded harbour.



Fully Connected

Built-in wireless connectivity links NSO evo3S to your existing mobile devices for remote viewing and control, and delivers easy online software upgrades via any wireless internet hotspot. Wired Ethernet, NMEA 2000®, and J1939 networking provides almost limitless integration options, from vessel-wide display systems to radar, sonar, engine integration, and much more.



Glass Helm Style

NSO evo3S glass helm systems offer the perfect combination of form and function. Create your own custom helm layouts to suit any activity, and switch seamlessly between those layouts in an instant. Low-profile glass helm styling complements any helm design, from ultra-modern to timeless classic.



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